

WHAT IS CLAIMED IS:

1. A manually operated tong assembly comprising:

- a) an elongated rectangular body member having an elongated slot portion and an elongated lead screw member extending through said slot portion and at least the length of said body member;
- b) an upper tong jaw fixed to said body member having sliding pipe dies captured therein and means for positioning at least one of said dies relative to said upper tong jaw;
- c) a lower tong jaw having sliding pipe dies captured therein, means for positioning at least one of said dies relative to said lower tong jaw and a slotted arm portion pivotally and translatively attached to a pin assembly threadably traversable along said elongated lead screw member located within said elongated slot portion of said body member.

2. The manually operated tong assembly according to claim 1 wherein said tong assembly

15 **further comprises a load cell activated by rotation of said lead screw.**

3. The manually operated tong assembly according to claim 1 wherein said means for positioning at least one of said pipe dies is a jack screw rotatably connected to at least one of said pipe dies.

4. The manually operated tong assembly according to claim 3 wherein said jackscrew is

20 **threadably engaged with an externally threaded sleeve member.**

5. The manually operated tong assembly according to claim 1 wherein one of said pipe dies located within in each said tong jaw is slidably removable.

6. The manually operated tong assembly according to claim 1 wherein said lower tong jaw comprises a pivotal arm having a transverse channel each side of said channel having 5 opposing parallel elongated slots therein.

7. The manually operated tong assembly according to claim 1 wherein said lead screw is threadably connected to a pin traversable within said slot portion of said body member.

8. The manually operated tong assembly according to claim 7 wherein a portion of said pin is captured within each of said elongated slots located in said lower tong jaw.

10 9. The manually operated tong assembly according to claim 2 wherein said leads screw further comprises a thrust bearing attached thereto for making compressive contact with said load cell.

10. The manually operated tong assembly according to claim 9 wherein load cell further comprises a gauge for registering compressive force applied to said load cell by said lead 15 screw.

11. A lightweight, manually operated pipe tong assembly clampable to pipe string without comprising:

a) an elongated body member having a head portion and a tang portion having an elongated slot said head portion having a central longitudinal counter bore and a 20 central longitudinal orifice with in said counter bore communicative with said

elongated slot said tang having a central longitudinal orifice located opposite said head portion;

5 b) a lead screw member rotatably extending longitudinally through said central longitudinal orifice and said central longitudinal orifice located in said tang portion opposite said head portion;

c) a pin member threadably located upon said lead screw slidable within said elongated slot a portion of said pin extending above and below said tang portion;

d) a first jaw member removably attached to said head portion of said elongated body member; and

10 e) a second jaw member having an arm portion comprising a transverse channel, each side of said channel having opposing elongated slots said slots being capable of capturing said portion of said pin extending above and below said tang portion in a pivotal manner.

12. The lightweight, manually operated pipe tong assembly according to claim 11 wherein
15 said each said jaw member further comprises a set of pipe dies slidable within a channel.

13. The light weight, manually operated pipe tong assembly according to claim 12 wherein at least one of said pipe dies is rotatably attached to a jack screw extending from said tong jaw.

14. The light weight, manually operated pipe tong assembly according to claim 13 wherein
20 said jack screw is threadably interposed within an externally threaded sleeve threadably installed within said tong jaw.

15. The light weight, manually operated pipe tong assembly according to claim 13 wherein
said jack screw comprises means for rotatable connection to at least one of said dies.

16. The light weight, manually operated pipe tong assembly according to claim 11 wherein
said tong assembly further comprises a load cell attached to said head portion and a
5 housing threadably attached to said load cell extending over a portion of said lead screw
in a manner whereby a portion of said lead screw extends beyond said housing.

17. The lightweight manually operated pipe tong assembly according to claim 16 wherein said
pipe tong assembly further comprises a gauge connected to said load cell.

18. A method for applying torque to a threaded pipe joint comprising the step of attaching
10 a portable manual tong assembly to the pipe joint the tong assembly having an
elongated rectangular body member having an elongated slot portion and an elongated
lead screw member extending through said slot portion and at least the length of said
body member an upper tong jaw fixed to said body member having sliding pipe dies
captured therein and means for positioning at least one of said dies relative to said
15 upper tong jaw and a lower tong jaw having sliding pipe dies captured therein, means
for positioning at least one of said dies relative to said lower tong jaw and a slotted arm
portion pivotally and translatively attached to a pin assembly threadably traversable
along said elongated lead screw member with said pin located within said elongated
slot portion of said body member, manipulating said lead screw member thus applying
20 leverage and torque to said lower tong jaw relative to said upper tong jaw via said pipe
dies about the axis of said pipe joint.

19. The method according to claim 18 wherein said method further comprise the step of positioning a load cell between a portion of said lead screw and said rectangular body and translating applied torque to an attached gauge.

20 The method according to claim 19 wherein said method further comprise the step of
5 charting the reading of said gauge relative to applied torque on said pipe joint.

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